

INTRODUCTION TO PARASITOLOGY

OBJECTIVES/RATIONALE

Parasitology is the study of organisms that derive their nourishment from other living things and cause damage. The student will identify the morphology and characteristics of parasites and the diseases they cause.

TEKS 121.14 4C, 5C

TAKS ELA 1, 4
Science 1, 2

National Science Education Standards A9-12; C9-12; F9-12; G9-12

National Health Care Skills Standards .01 .07,.09

National Curriculum Standards for School Mathematics S1: S3

KEY POINTS

- I. Key terms in parasitology
 - A. Host
 - B. Obligate parasite
 - C. Facultative parasite
 - D. Protozoa
 - E. Nematodes
 - F. Helminths
 - G. Cestodes
 - H. Trematodes
 - I. Arthropods
 - J. Infestation
- II. Parasites that infect humans have various classifications, characteristics, and life cycles:
 - A. Protozoans
 - B. Helminths
 - C. Arthropods
- III. Protozoa are microscopic one-celled animals that are categorized according to their method of movement.
 - A. Ciliates - The only parasitic ciliate that causes disease in humans is balantidium coli.
 - B. Flagellates - Three of the most common and medically significant include giardia, trypanosoma, and trichomonas.
 - C. Amoeba - Amoeba, also known as sarcodina, include the pathogenic amoeba entamoeba and endolimax which cause dysentery in humans.
- IV. Helminths
 - A. Cstodes (flatworms)
 - B. Nmatodes (roundworms)
 - C. Tematodes (flukes).

- V. Athropods
 - A. Parasitic insects (mosquitoes, lice, and fleas)
 - B. Parasitic arachnids (ticks and mites).

ACTIVITIES

- I. Complete the **Parasitology Worksheet / Quiz.**
- II. Complete the **Parasitology Laboratory Investigation.**

MATERIALS/RESOURCES

Microscopes

Prepared slides of protozoa and helminths and their eggs.

Lens paper

[HTTP//WWW.MEDSCHOOL.isumc.EDU/micr/MIRROR/PUBLIC-HTML/INTRO.HTML](http://www.medschool.isumc.edu/micr/mirror/public-html/intro.html)

[HTTP://WWW.GEOCITIES.COM/capecanaveral/3504](http://www.geocities.com/capecanaveral/3504)

ASSESSMENT

Completion of worksheet / Quiz

Laboratory Investigation Rubric

ACCOMMODATIONS

For reinforcement, the student will design a poster showing how to prevent a specific parasitic infection.

For enrichment, the student will research and report on a link between parasites and cancer.

REFLECTIONS

Parasitology Laboratory Investigation

Purpose:

In this laboratory exercise, the student will identify the morphology and characteristics of parasites and the diseases they cause.

Background Information:

Materials:

Microscopes

Prepared slides of protozoa and helminths and their eggs.

Lens paper

Procedure:

1. Examine prepared slides of parasitic protozoa.
2. Examine prepared slides of the eggs of common parasitic worms.

Data:

Draw sketches of protozoa and their eggs

Conclusion:

1. Differentiate protozoa from other microorganisms.
2. List diseases caused by parasites. Include symptoms and treatment.
3. Diagram the life cycle of a disease-causing parasite. Include a sketch of the parasite.
4. Explain prevention and control measures for the chosen disease causing parasite.

PARASITOLOGY

Match the following parasite descriptions with the appropriate name:

- | | |
|--------------------------------------|---------------------------|
| ___ 1. pinworm | a. Taenia saginata |
| ___ 2. elephantiasis | b. Plasmodium |
| ___ 3. sexually-transmitted | c. Entamoeba histolytica |
| ___ 4. beef tapeworm | d. Wuchereria bancrofti |
| ___ 5. pork tapeworm | e. Taenia solium |
| ___ 6. fish tapeworm | f. Ascaris lumbricoides |
| ___ 7. roundworm (common in El Paso) | g. Enterobius verinularis |
| ___ 8. malaria | h. Diphylobothrium latum |
| ___ 9. flagellate | i. Giardia lamblia |
| ___ 10. amoebic dysentery | j. Trichomonas |

11. Protozoa that move by means of short, hairlike projections are the _____.
12. The only ciliated protozoa that infects humans is _____.
13. The most common intestinal parasite in the U.S. is _____ and is transmitted by _____.
14. List symptoms of Trichomonas infection:
15. Flatworms have sections called _____ which contain the reproductive structures.
16. The medical term for body lice is _____ and for head lice is _____.
17. Phthirus pubis is another name for _____.
18. Fleas can infest household pets and _____.